

Master of Agricultural Systems Engineering

College of Agriculture Sciences

King Faisal University

Program Name	Master of Agricultural Systems Engineering
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1. Introduction

The Master of Agricultural Systems Engineering is concerned with the application of engineering theories and the development of modern technology methods to serve the fields of agriculture, food and the environment and achieve the vision of the Kingdom 2030 relying on modern engineering techniques in agricultural applications. It also works to achieve King Faisal University Strategy in excellence in teaching and learning, community-based partnership to promote a community partnership that promotes mutual enrichment between the university and society.

In addition, to prepare trained cadres in engineering techniques and applications in the field of agriculture and industrial, which meets the needs of the local and regional markets. The Master program includes three disciplines: Food Processing Engineering, Environmental Systems Engineering and Field Mechanization Engineering.

2. Program Information

Program Name	Master of Agricultural Systems Engineering
College	College of Agriculture Sciences
Track	Agricultural Systems Engineering
Level	Postgraduate
Degree	MSc
Years of Study	2 Years
Credit Hours	30
Language	English

3. Admission Requirements

Admission and study in the program requires the fulfillment of all the requirements of the Unified Regulations for Postgraduate Studies in Saudi Universities provided that the general assessment of the applicant is very good. In addition, the admission of students to the agricultural engineering systems master program requires

- The applicant must have a bachelor's degree in agricultural systems engineering from King Faisal University or the equivalent of recognized universities and with at least a very good grade.

- Students outside the department who wish to study may be accepted provided they are graduates of engineering departments such as chemical engineering, mechanical engineering, electrical engineering or environmental civil engineering. They are not allowed to enroll in the program unless they have completed their courses in the field of engineering of various agricultural systems from the bachelor's degree, which is determined by the department board.
- The applicant should pass personal interview conducted by the department.
- The admitted student should pass with a successful completion of intensive English course for a semester before starting the master study or a have TOEFL score of 450 or equivalent.
- The student must submit a letter from the employer stating the approval of the study and part-time (at least two days per week) if he is an employee.

4. Study Plan

The program offers a master's degree in agricultural systems engineering in one of the following disciplines:

- **Food Process Engineering**
- **Environmental systems engineering**
- **Field mechanization engineering**

In order to obtain a master's degree in agricultural systems engineering, the student must successfully complete the graduation requirements in this program, which is the completion of at least 30 credit hours. The student must complete at least 24 credit hours of courses determined by the department board, in addition to 6 credit hours for the research project of the thesis and its writing up. The 24 hours are distributed so that the student will study 9 credit hours of compulsory courses and at least 6 hours of specified elective courses and the remaining credit hours will be taken from unspecified elective courses according to the study objectives and requirements for each of the three specific disciplines mentioned above.

Accordingly, the student's study program includes three groups of courses as:

- **Compulsory courses**
- **Specified elective courses**
- **Unspecified elective courses**

Compulsory courses:

All students enrolled for postgraduate studies in the department are required to study them compulsively and they are:

Course Code	Course Title	Credit Hours
01581600	Applied Mathematics	3
01581601	Advanced Instrumentation	3
01581602	System Analysis and Simulation	3

(a) Food Process Engineering Discipline:

Specified elective courses: Students enrolled in this discipline must study at least 6 credit hours of the following courses:

Course Code	Course Title	Credit Hours
01581603	Advanced Food Process Engineering	3
01581604	Heat and Mass Transfer	3
01581605	Unit Operations in Food Process Engineering	3
01581606	Properties of Biological Materials	3

Unspecified elective Courses:

The advisory committee for each student enrolled in this discipline will choose from the following courses to complete the remaining credit hours according to the objectives and requirements of the study in this discipline.

Course Code	Course Title	Credit Hours
01581607	Numerical Analysis	3
01581608	Advanced Thermodynamics	3
01581609	Advanced Fluid Mechanics	3
01581610	Advanced Automatic Control	3
01581611	Alternative Energy Systems	3
01581612	Handling and Packaging of Agricultural Products	3
01581613	Advanced Agricultural Products Storage Engineering	3
01581614	Selected Topics	2
01581615	Seminar	1

(b) Environmental Systems Engineering Discipline:

Specified elective courses: Students enrolled in this discipline must study at least 6 credit hours of the following courses:

Course Code	Course Title	Credit Hours
01581604	Heat and Mass Transfer	3
01581616	Environmental Control Systems	3
01581617	Design of Agricultural Structures	3
01581618	Management and Recycling of Waste	3

Unspecified elective Courses:

The advisory committee for each student enrolled in this discipline will choose from the following courses to complete the remaining credit hours according to the objectives and requirements of the study in this discipline.

Course Code	Course Title	Credit Hours
01581607	Numerical Analysis	3
01581610	Advanced Automatic Control	3
01581611	Alternative Energy Systems	3
01581614	Selected Topics	2
01581615	Seminar	1
01581619	Indoor Air Quality inside Agricultural Structures	3
01581620	Modeling in Environmental Control	3
01581621	Agricultural Expert Systems	3

(c) Field Mechanization Engineering Discipline:

Specified elective courses: Students enrolled in this discipline must study at least 6 credit hours of the following courses:

Course Code	Course Title	Credit Hours
01581622	Advanced Farm Power and Machinery	3
01581623	Management Technologies of Agricultural Operations	3
01581624	Soil Mechanics	3
01581625	Precision Farming Technology	3

Unspecified elective Courses:

The advisory committee for each student enrolled in this discipline will choose from the following courses to complete the remaining credit hours according to the objectives and requirements of the study in this discipline.

Course Code	Course Title	Credit Hours
01581614	Selected Topics	2
01581615	Seminar	1
01581626	Agricultural Machinery Design	3
01581627	Equipment of Animal and Poultry Production Farms	3
01581628	Hydraulic Systems of Farm Machinery Equipment	3
01581629	Combine Harvesting Machines	3